



# Comprehensive Sustainability Strategy

---

Committee Recommendations  
Spring 2016

## University of Notre Dame Comprehensive Sustainability Strategy Committee Recommendations

These recommendations were developed through the efforts and collaboration of the Executive Vice President's Committee to Create a Comprehensive Sustainability Strategy. The document does not represent any one person's ideas, nor does every Committee member agree with every part of the plan. However, the Committee recognizes the importance of reaching consensus on the aspirational plan that is included in this document.

The Committee also recognizes that opportunities, costs, technology, and regulations are constantly changing and can affect the University's goals and means of achieving those goals. Thus the document and recommendations are intended by the Committee to be regularly updated and modified to reflect new strategies developed by students, faculty, staff, and specific working groups. The Committee agrees that these recommendations and future modifications can serve as the foundation and guiding principles for increasing sustainability in all areas and all levels across the University, while recognizing that this is only the first step in a long journey.

### Committee Members:

John Affleck-Graves, *Executive Vice President – Sponsor*

Linda Kurtos, *Director Office of Sustainability – Chair*

Chris Abayasinghe, *Director Dining Services*

Vaibhav Agarwal, *Director Procurement Services*

Peter Burns, *Henry Massman Chair in Civil Engineering & Environmental & Earth Sciences, Director of Center for Sustainable Energy*

Tessa Clarizio, *undergraduate student*

Anne Coleman, *Associate Professor of American Studies*

Melissa Conboy, *Senior Deputy Athletic Director*

Fr. Robert Dowd, *Assistant Professor, Fellow Political Science, Kellogg Institute for International Studies*

Brittany Hanrahan, *graduate student, Biological Sciences*

Paul Kempf, *Senior Director Utilities & Maintenance*

Linda Kroll, *Associate Vice President, Budget and Planning*

Doug Marsh, *University Architect and Associate Vice President*

Sarah Misener, *Associate Vice President Campus Services*

John Nagle, *The John N. Matthews Chair in Law, Professor Environmental Law*

Kathleen Rocks, *undergraduate student*

Samantha Salden, *Assistant Professor of the Practice, School of Architecture, Assistant Dean of Graduate Programs*

Daniel Sehlhorst, *undergraduate student*

Anthony Serianni, *Professor, Chemistry and Biochemistry*

Jennifer Tank, *The Ludmilla F., Stephen J., and Robert T. Galla Professor of Biological Sciences; Director of the Environmental Change Initiative*

Sandra Vera-Muñoz, *Associate Professor of Accountancy /KPMG Faculty Fellow.*

Abigail Veres, *undergraduate student*

## Introduction

Throughout its history the University of Notre Dame has embodied the traditional principles of sustainability as a Catholic university committed to remaining vital and strong for succeeding generations. The contemporary concept of environmental sustainability seeks a similar goal—the wise use of our natural resources to ensure their availability for future generations. While environmental sustainability often focuses on energy efficiency and cost savings, Notre Dame’s approach is grounded in our Catholic mission and University values, acknowledging the indivisible link between environmental sustainability and the University’s future. Sustainability has its own inherent value: it equates a respectful stewardship of the environment with the faithful care of God’s creation. As his Holiness Pope Francis has instructed, “Let us be ‘protectors’ of creation, protectors of God’s plan inscribed in nature, protectors of one another and of the environment.”<sup>1</sup>

For many years the University has acted to inspire and encourage environmental sustainability, both academically and administratively. Through the implementation of energy conservation measures across facilities, the design and construction of LEED-certified buildings, the establishment of the Office of Sustainability, academic and research centers such as the Center for Sustainable Energy, the Environmental Change Initiative, and ND-GAIN, and the creation of an undergraduate minor in Sustainability, the University has sought to advance sustainability on campus and abroad.<sup>2</sup> But we realize that to continue to be Catholic leaders, we can and must do more. Following the teachings of our Catholic tradition and mission, and further inspired by His Holiness Pope Francis, the Executive Vice President’s Comprehensive Sustainability Strategy Committee was convened to assess our current sustainability practices and promote the future protection of God’s creation at Notre Dame. The Committee, composed of faculty, administrators, and students, developed the following goals and recommendations to enable the University to widen and deepen sustainable practices across all its activities and functions. Consistent with sustainability aims and our Catholic character, the Committee sought to approach the effort from three fundamental perspectives: 1) respect for the human condition; 2) respect for the conservation of natural resources; and 3) economic viability. University actions should first benefit people—not just the current generation or today’s community but future generations and future communities. Secondly, our decisions and actions must respect the planet’s inherent value and consider both immediate and long-term impacts on its resources. Finally, we must consider the economic impacts of our actions to ensure the University’s financial health for decades to come. This strategy has been guided by a group of faculty, staff, and students in its development; however, the strategies outlined here will succeed only if each member of the Notre Dame Community embraces this vision and takes action to bring it to fruition. The small choices we make each day will have the largest impact on our community and our environment.

Many of the recommendations suggest changes in attitude and practices. Many also require economic investments. All reflect our need to act. As His Holiness Pope Francis noted in his encyclical *Laudato si’*:

---

<sup>1</sup> Pope Francis, Homily of Pope Francis, Mass, “Imposition of the Pallium and Bestowal of the Fisherman’s Ring for the Beginning of the Petrine Ministry of the Bishop of Rome,” March 19, 2013.

<sup>2</sup> To learn about the variety of University efforts to educate the campus community on sustainability issues, to explore sustainability on an academic level, or to discover how to get involved in making Our Lady’s University more sustainable, visit [green.nd.edu](http://green.nd.edu).

It is no longer enough, then, simply to state that we should be concerned for future generations. We need to see that what is at stake is our own dignity. Leaving an inhabitable planet to future generations is, first and foremost, up to us. The issue is one which dramatically affects us, for it has to do with the ultimate meaning of our earthly sojourn. . . . Efforts to promote a sustainable use of natural resources are not a waste of money, but rather an investment capable of providing other economic benefits in the medium term.<sup>3</sup>

## Targets and Actions

The Committee views the following recommendations as the University's commitment to act with greater deliberation toward sustainability and with greater transparency. An objective of this document is to provide an aspirational statement of broad goals, serving as a compass for future direction. It includes five-year action plans for all areas of University activities in light of these goals. However, this document is neither final nor complete, and it will continue to evolve along with the University's lived commitment to sustainability. A Standing Committee will meet at least once every year to review and improve the recommendations.<sup>4</sup> As part of its review, the Standing Committee will evaluate the University's progress on the goals and consider additional aspirational goals to advance the University's sustainable strategies. The Standing Committee will also identify new opportunities for expansion and improvement, such as constructing Net Zero buildings, creating an academic major in Sustainability Studies, transitioning to fully renewable energy sources, and procuring only sustainable products.

To refine the five-year action plans, the Standing Committee will establish small working groups for each of the numbered strategy areas detailed in the recommendations. These working groups will be collaborative, interdisciplinary teams that will set specific, measurable benchmarks in order to achieve the long-term goals set in each strategy area. The smaller working groups will report at least once every two years to the Standing Committee on their progress and to document the new measurable goals that are envisioned in the five-year action plans.

In order to increase transparency and public engagement, the work of the Standing Committee and working groups will be updated annually through digital reports available at [green.nd.edu](http://green.nd.edu).

The Comprehensive Sustainability Strategy recommendations focus on the University's continued actions and aspirations in six areas:

- Energy and Emissions
- Water
- Building and Construction
- Waste
- Procurement, Licensing, and Food Sourcing
- Education, Research, and Community Outreach

---

<sup>3</sup> His Holiness Pope Francis, *Laudato si': On Care for Our Common Home*, June 18, 2015, ¶¶160, 191 (hereafter *Laudato si'*).

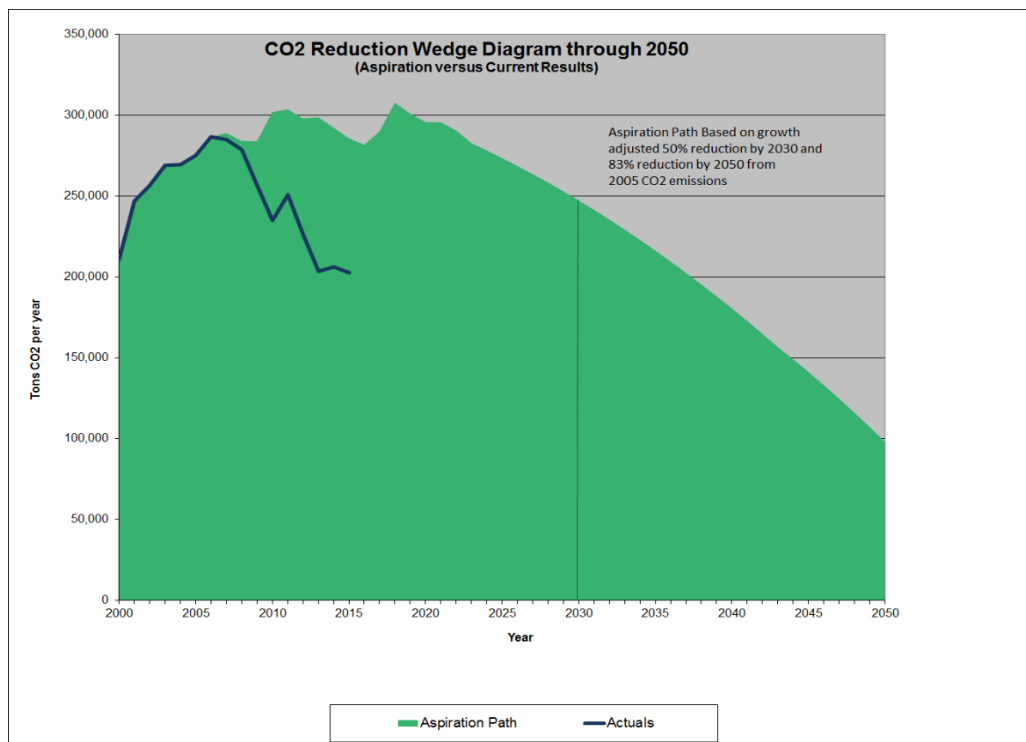
<sup>4</sup> The Standing Committee shall be made up of interdisciplinary faculty and staff, as recommended by the Executive Vice President, and at least four students: two undergraduate students appointed by the student body president, one graduate student as recommended by the Dean of the Graduate School, and one student recommended by the Executive Vice President.

## Recommendations

### A. Energy and Emissions

Energy consumption is an integral part of civilization—heating our buildings, lighting our way, fueling our travel, and fostering communication and convenience. But our appetite for energy has had a major impact on the Earth’s climate and resilience. While the University historically has relied heavily on nonrenewable fossil fuels, such as coal and natural gas, we now understand better how their use negatively impacts the environment. The harvesting of these fossil fuels and the emissions they produce contribute to climate change. Climate change increases the prevalence of rising sea levels and intensifies storms and drought, all of which add to human suffering. As a Catholic university, we strive to be responsible stewards of the Earth and its resources. We strive to respect all the people with whom we share the planet and to leave a legacy for generations far into the future.

In our endeavor to act as good stewards, the University has worked to manage the emissions and pollutants caused by our energy production. In 2010, we set our first emissions-related sustainability goal, striving by 2030 to reduce our Scope 1 and 2 carbon emissions<sup>5</sup> by 50% per gross square foot from 2005 levels. Our long-range plan is to reduce such emissions by 83% from 2005 levels by 2050 and eventually become carbon neutral. As the graph below shows, even today we have made substantial progress toward meeting the 2030 and 2050 goals.



<sup>5</sup> Greenhouse gas (GHG) calculations generally categorize emissions into three “Scopes.” Scope 1 emissions are direct GHG emissions from energy and electricity sources owned or operated by the reporting entity. Scope 2 emissions are indirect GHG emissions from electricity and energy purchases. Scope 3 emissions are all other indirect GHG emissions, such as those produced through transportation, employee travel and commuting, solid waste disposal, and wastewater treatment.

Although it is not economically or operationally feasible to immediately discontinue all fossil fuel use, we can strive to lessen the negative impact of our energy use by reducing our energy demand, increasing our energy efficiency, and increasing the percentage of our energy fueled by renewable and sustainable energy sources. To this end, we have developed a number of energy and emission strategies.

### Strategies

#### **1. Move to less carbon-intensive fuels**

The University needs to use less carbon-intensive fuels. Coal-fueled energy is one of the greatest contributors to climate change and environmental degradation through the creation of CO<sub>2</sub> and other dangerous atmospheric emissions. Natural gas is an economical and efficient provisional substitute that produces fewer dangerous emissions and can fully replace coal in the short term. Over the next five years, Notre Dame will gradually reduce its coal consumption to zero by using more natural gas. In the longer term, the University will continue to seek opportunities to develop more renewable and recoverable energy sources.

##### *5 Year Action Plan*

- Install natural gas-fired combined cycle gas turbines and heat recovery steam generators to expand the existing combined heat and power plant, producing less carbon intensive electricity, steam, and chilled water, while fully supporting campus growth
- Install a more robust natural gas delivery system to support the future reliance on increased volumes of natural gas
- Explore sources for adequate backup fuel in case of natural gas curtailments or service interruptions

#### **2. Increase use of renewable and recoverable energy sources**

Increasing the percentage of energy that comes from renewable and recovered sources decreases the need for fossil fuels and decreases overall emissions. It also provides a greater diversity of energy sources, reducing the University's dependence on a single energy supply. Accordingly, the University will seek to provide at least 10% of its energy supply through renewable and recoverable energy by 2020 and at least 25% by 2050.

##### *5 Year Action Plan*

##### *Current Projects*

- Apply heat-recovery chillers at appropriate sites
  - A 100-ton unit at Stepan Chemistry to recover energy from the facility's exhaust air system
  - A heat-recovery chiller at the power plant to recover energy from the plant condenser water system to preheat boiler feed water and domestic hot water

- Install a 300-ton geothermal energy system in East Quad to support Ricci Band and Pasquerilla Center, expandable for the future East Quad
- A 1,000-ton geothermal well field beneath south campus stadium parking lots
- A 1,350-ton geothermal well field beneath Ricci Fields
- Continue to work with outside electricity providers to increase the sustainability of their energy sources

#### *Projects in the Planning Stage*

- A 2.25 MW hydroelectric facility on the South Bend dam of the St. Joseph's River
- A large-scale regeneration heat recovery process to collect energy from the power plant condenser water system for use in heating east campus facilities, including McCourtney Hall, the two new residence halls, and potentially future facilities

#### *Projects in the Feasibility Stage*

- The installation of geothermal well fields at several locations on campus
  - A scalable 2,300-ton geothermal well field in White Field to support future north campus growth
  - A scalable 2,000-ton geothermal field at Burke Golf Course to support West and South Quad facilities
- The potential to use solar energy at various locations on and off campus
  - An approximately 10 MW ground-mounted solar array over the geothermal well field at White Field
  - A solar PV roof-mounted array at the Ironwood facility
  - A solar PV ground-mounted array at the Kenmore facility
- The potential use of biomass as a solid power plant fuel

#### *Partnerships*

Renewable energy installations are not always immediately cost effective. To meet the University's energy and emissions goals in a timely fashion, the University should seek the assistance of benefactors and partners who are equally devoted to helping the University in its stewardship mission. To this end, the University will consider partnerships and gifts to help meet its goals.

- Design a development campaign goal to support one or more renewable energy installations

### **3. Increase energy conservation and efficiency**

According to the U.S. Environmental Protection Agency, "improving energy efficiency is one of the most constructive and cost-effective ways to address the challenges of . . . energy

security and independence, air pollution, and global climate change.” Each building on campus consumes steam, chilled water, potable water, and electricity, and the University already engages in many energy conservation measures. However, few buildings are currently metered, so specific information on resource use and efficiency is unavailable. In order to further identify opportunities to reduce demand and increase efficiency, the University will explore the feasibility of implementing extensive metering across campus.

Long-Term Goal:

Increase overall energy efficiency of campus operations and reduce the University’s energy demand.

*5 Year Action Plan*

- Measure energy use in campus facilities
  - Create a pilot project to meter and report usage in a representative sample of existing buildings
  - Integrate into design standards the level and desired application of metering for all new and renovated facilities
  - Establish cost and time line to fully meter most existing buildings on campus
  - Determine the resources to support an ongoing extensive metering system
  - Implement energy analytics software
  - Install a real-time dashboard showing energy use in each metered building and expand it as new metering is added
  
- Increase energy efficiency across campus
  - Work with faculty and academic units to increase efficiency in classrooms and laboratories
  - Work with athletic units to increase efficiency in athletic facilities
  - Work with auxiliary units to increase efficiency in their facilities
  
- Decrease energy use in campus facilities
  - Explore the feasibility of a mandatory Energy Star purchase policy
  - Work with the campus community to develop a broader temperature set-point policy

**4. Decrease harmful emissions**

Atmospheric emissions are unavoidable end products of modern life. Although we cannot expect to eliminate them all, we can work to reduce those most harmful to people and the planet. Carbon dioxide and other harmful emissions come from varied sources, large and small, such as power plants, dry cleaners, landfills, automobiles, trucks, airplanes, and lawn equipment. Much of the University’s current effort is directed toward reducing emissions originating from the power plant and energy production. In addition to this larger effort, the University can act to reduce emissions from smaller and mobile sources across campus.

Long-Term Goal:



Reduce University carbon dioxide and carbon dioxide equivalent emissions per gross square foot by 50% from 2005 levels by 2030 and 83% by 2050.

#### *5 Year Action Plan*

- Track and reduce Scope 3 emissions

Reducing emissions on campus is often seen as a centralized activity, with little or no opportunity for individual participation. However, Scope 3 Emissions are more decentralized and frequently can be reduced by individual behavioral choices. By including Scope 3 emissions in our overall reduction goal, we not only reduce our overall emissions but also provide a way to involve the entire University community in meeting this goal.

For a complete picture of its emissions, the University needs to track its Scope 3 emissions, including emissions generated from:

- i. Business travel;
- ii. Commuting;
- iii. Purchased goods and services;
- iv. Capital goods;
- v. Fuel- and energy-related activities not included in Scope 1 and 2; and
- vi. Waste generated in operations.

#### *Current Projects*

- Update and enforce a campus-wide no-idling policy
- Work with the campus community to develop ways to encourage carpooling, shared transportation, and commuting
- Develop a plan to increase the percentage of alternative fuel and/or electric fleet vehicles
- Retain outside experts to help measure Scope 3 emissions and develop a long-term goal
- Expand preferential parking programs for EV, LEV and carpool vehicles
- Establish minimum mpg standards for all new University-owned vehicles

### **5. Make the University's energy and emissions commitments transparent**

Sustainability is not achieved by a single department or team; it relies on everyone acting together to reach shared goals. By disseminating information on energy use and emissions, the University can engage its stakeholders in contributing to greater sustainability. The University's transparency encourages others to identify their own environmental impact and participate in saving energy and reducing harmful emissions.

#### Long-Term Goal:

Provide the Notre Dame community with complete current energy and emissions data and with reports on progress toward goals.

### *5 Year Action Plan*

- Create a detailed sustainability report updated and published annually
- Create and enhance a web-based dashboard that provides real-time energy use and that is expanded as each campus facility becomes metered

## **B. Water**

Water is one of our most important natural resources and assets. The United Nations has linked the right to clean water to basic human rights.<sup>6</sup> His Holiness Pope Francis, in *Laudato si'*, echoes this view and also expresses concern about a number of other water issues, including drought, disparate access, “water poverty,” contamination, and commodification.<sup>7</sup> His Holiness warns that problems with water are partly educational and cultural issues, noting that “water continues to be wasted” even where it is abundant.<sup>8</sup> In his call to take care of our common home, Pope Francis emphasizes that caring for our water globally is an important step.

Water plays a vital role in University operations. We use it for heating and cooling, for food, drink, and hygiene, and for keeping our campus beautiful. Fortunately, the University’s geography and climate provide easy access to clean and abundant water. Yet, as Pope Francis advocates, even where water seems plentiful, we must use it wisely and avoid waste. While the University has taken a number of steps to reduce its water use and reuse, additional strategies can yield greater efficiencies.

### Strategies

#### **1. Determine how the University’s water use and reuse compare to that of peer institutions and entities**

Water usage can be difficult to define and quantify across various entities. Some institutions pump and treat their potable water, some purchase potable water. Some use various recycling programs, which can affect how usage is measured. Climate and geographical location also have a great impact on water availability. To begin setting long-term goals, comparative data are essential.

#### Long-Term Goal:

Determine appropriate water level use for University operations.

### *5 Year Action Plan*

- Identify peer institutions for water use comparison, considering factors such as climate, gross square footage, and full-time staff and student enrollment numbers
- Conduct a thorough review of water use, both quantity and quality, at peer institutions

---

<sup>6</sup> United Nations General Assembly Resolution 64/292, July 28, 2010.

<sup>7</sup> *Laudato si'*, ¶¶27–31.

<sup>8</sup> *Ibid.*, ¶31.

## **2. Track water use by function and location**

To become better stewards, the University must have a better understanding of how it uses water. The amount of water drawn on campus and the amount of wastewater sent for treatment are measured, but metering of specific facilities or uses is currently not available. To determine opportunities for better water conservation, the University should quantify and partition specific areas of use. New construction projects generally include building-specific water metering, but some retrofitting of older buildings to measure use is also necessary. As the campus continues to grow, with both new construction and renovations, the ability to measure use will become more refined and widespread.

### Long-Term Goal:

Identify areas of potential excessive water use and opportunities for greater water conservation and increased accountability.

### *5 Year Action Plan*

- Install flow meters in key representative buildings and facilities across campus
- Track individual building use where practical
- Track and measure all water usage on golf courses, practice fields, and athletic facilities
- Track and measure all water used in green spaces and landscaping in greater detail, so as to partition distribution

## **3. Increase water conservation in buildings, landscaping, and personal use**

Conserving water makes good sense in both the short and long terms. Even if the University's water use is similar to that of comparable institutions, it still can strive to do more. Additionally, less water use in buildings results in greater savings from water treatment.

### Long-Term Goal:

Decrease overall water use across campus.

### *5 Year Action Plan*

- Eliminate any once-through water cooled equipment in buildings
- Increase native plantings on campus
- Increase rain gardens on campus
- Increase green roofs
- Analyze opportunities for permeable pavement
- Develop a schedule to retrofit older buildings with low-flow fixtures and other water-saving devices
- Set a goal to decrease water use by Full-time Equivalent (FTE) based on tracked data
- Increase practices that impact the quality of water leaving campus, including best management practices for fertilizer use and native plantings

- Design an outreach and education campaign highlighting the importance of simple behavioral changes that reduce water consumption

#### **4. Investigate feasibility of water reuse**

One of the key elements of water conservation is reuse. The University's current water reuse is limited to using and replacing lake water for power plant operations. Reuse of gray water—water used in sinks, showers, and drinking fountains—should be explored to safely incorporate this practice into University operations.

Long-Term Goal:

Conserve greater volume of water by increasing the volume of water reuse across campus.

*5 Year Action Plan*

- Investigate opportunities for gray water use in landscape irrigation
- Investigate opportunities for storm water storage and reuse in irrigation of golf courses and other athletic venues

#### **5. Wellhead protection and storm water quality management**

Protection of our water source and management of storm water runoff are essential to ensuring that water resources are protected. The University must act to properly use and return water to the aquifer to recharge the valuable water resources that exist.

Long Term Goal:

Protect existing production wells from potential sources of contamination and implement best practices for storm water management.

*5 Year Action Plan*

- Ensure that the overall wellhead protection area on campus as well as the sanitary setback areas located in close proximity to wells are properly used, maintained, and protected
- Implement creative, beneficial, and maintainable storm water best management practices to improve storm water quality
- Ensure that storm water runoff from land-disturbing activities is properly managed

#### **6. Provide greater transparency in water use and goals**

Long-Term Goal:

Promote greater understanding and accountability of the University's use and management of its water resources.

### *5 Year Action Plan*

- Track and report University water usage
- Publish water usage goals

## **C. Building and Construction**

University buildings and structures are long-lasting commitments to our educational mission. We design our buildings to serve many needs over many decades. They provide space for learning, living, and social interaction, but they also create spaces that reflect the University's values and Catholic mission. The design and construction of University buildings, with their long-lasting energy and resource demands, can greatly impact sustainability. As His Holiness Pope Francis instructs, our construction and repair of buildings should aim to reduce energy consumption and pollution.<sup>9</sup> As good stewards of the Earth's resources, the University has taken a number of actions to make its new and existing buildings functional, efficient, aesthetically pleasing, and sustainable. Current University standards ensure that major renovations include increased building and energy efficiency, increased water conservation, and greater sustainable design. However, additional steps can ensure the continued sustainability of *all* of our buildings and construction.

### Strategies

#### **1. Ensure efficient space utilization before constructing new buildings**

Our foremost consideration in this aspect of sustainable development is fully utilizing our existing space. Before tearing down structures, digging up land, and committing extensive natural and economic resources to creating brand-new facilities, we should fully consider whether our current facilities meet our demands.

#### Long-Term Goal:

Ensure existing space is fully and efficiently used before planning new development.

### *5 Year Action Plan*

- Analyze/refine current building space-use study to determine near- and long-term expected demand
- Increase communication and understanding of sustainability benefits of planned space utilization
- Create a policy that guides decision-making concerning new construction as compared to renovation or reorganization

#### **2. Set permanent new construction design standards that seek then-current LEED Silver certification or greater**

---

<sup>9</sup> *Laudato si'*, ¶180.

The United States Green Building Commission's LEED design standards are consistently evolving to encourage the construction of high-performance, sustainable, livable spaces. Setting a goal to continue to follow this design standard ensures that our new buildings will always use the most current sustainability design standards and mechanisms. LEED certification also signals to our stakeholders that the University is committed to sustainable development.

Long-Term Goal:

Ensure that newly designed and constructed space meets sustainable design standards to consistently yield efficient and sustainable facilities over the years.

*5 Year Action Plan*

- Update all University design standards to ensure that all new and substantially renovated facilities are designed, at a minimum, to the then-current LEED Silver Certification level.

*Partnerships*

The LEED system recognizes graduated levels of sustainable design, reflecting greater levels of sustainability. LEED Platinum is the highest designation and already has been achieved by a number of universities and colleges. A LEED Platinum building not only serves as a very visible way to engage stakeholders in the University's sustainability goals, but it also serves as a laboratory where sustainability actions can be tested for their fit with the University culture. However, the initial design and construction costs can be great, and such buildings have a longer return on investment than buildings constructed at lower LEED design levels. To meet the University's building and construction goals in a timely fashion, the University may need the assistance of benefactors and partners who are equally devoted to helping the University be a good steward. To this end, the University will seek partnerships and gifts to help meet its goals.

- Design a development campaign to support the first LEED Platinum building on campus

**3. Incorporate energy and water efficiency goals and guidelines into University design standards**

Not all of the construction on campus is new construction and appropriate for LEED certification. However, the lessons we have learned in how to best increase energy efficiency through remodeling and upgrades should be incorporated into our permanent policies and guidelines.

Long-Term Goal:

Ensure that all renovations and space upgrades increase overall energy and water efficiency of campus operations and reduce the University's energy and water demand.

*5 Year Action Plan*

- Analyze impacts from current energy conservation measure projects
- Draft policy for insertion in University design standards that incorporates best practices learned from past, current, and future energy conservation measures
- Analyze impacts from water conservation measures

#### 4. Track and report building performance

Once we have ensured that our new buildings are designed with sustainability and efficiency in mind, we must ensure that all of our facilities continue to perform efficiently and effectively. Building performance also includes satisfied occupants. It is not enough to have an efficient and consistent heating system if the occupants are uncomfortable and take personal actions that counteract the design and operation measures.

##### Long-Term Goal:

Ensure that our facilities are continually operating efficiently and effectively and, as they age, remain as sustainable as when initially designed.

##### *5 Year Action Plan*

- Create guideline for tracking post-occupancy building performance
- Create pilot project to survey occupants on performance standards
- Create a strategy to engage the campus community in cultivating and implementing sustainable practices in daily operations

#### D. Waste

Pope Francis advises on the importance of modifying our consumption and developing an economy of waste disposal and recycling.<sup>10</sup> In 2013, Americans generated over 254 million tons of trash, or about 4.4 pounds per person, per day.<sup>11</sup> Although recycling rates have increased dramatically over the past 25 years, as a society we still recycle less than 35% of our overall waste. At Notre Dame we create, on average, more than 3,600 tons of landfill waste per year, or more than 400 pounds of waste per full-time employee per year. Waste creates a number of problems for people and the environment, including contributing to ground and water pollution, increased space demands for landfills, potential leaching of toxins, and increased greenhouse gases.

The University's current goals are to divert 50% of all waste by the end of 2016 and 67% by 2030; we should continue to work toward these goals. Although the University has been actively combating waste on a number of fronts, there is much opportunity for improvement, including moving toward setting an informed goal of overall waste per FTE.

---

<sup>10</sup> *Laudato si'*, ¶180.

<sup>11</sup> The most recent reported data by the USEPA.

## Strategies

### **1. Decrease food waste throughout campus—in food services, dining halls, retail, concessions, dorms, and administrative buildings**

The University sends tons of food waste to landfills each year. Internal surveys estimate that nearly one ton of post-consumer waste is generated in the dining halls alone each day. This food could be better used as food sources for people or livestock, or even to create clean energy.

#### Long-Term Goal:

Decrease unnecessary food waste from food service facilities across campus.

#### *5 Year Action Plan*

- Incorporate Lean Path program to measure and manage food waste
- Facilitate clean energy composting processes in pilot program for Notre Dame Food Services' Center for Culinary Excellence
- Roll out clean energy composting program to dining halls
- Analyze process to include composting at retail food locations
- Increase food donation programs
- Initiate tray-free dining
- Work with catering to design sustainable “per person” serving size standards

### **2. Improve campus-wide single-stream recycling rates**

The simpler it is to recycle, the more likely a person is to participate. The University attempts to make recycling as simple as possible for its community by, among other things, providing single-stream recycling for most of its waste products. Single-stream recycling relieves users from having to separate their recyclable waste into categories. Rather, all recyclables can be commingled in the same containers. Even with the more simplified system, the on-campus single-stream recycling rate is less than the national average. Adding to the problem is our lack of knowledge of more specific recycling practices. With the exception of certain special events, currently the University can only identify its campus-wide single-stream recycling rate. There is no process in place to measure recycling rates in individual buildings or facilities. The University can do several things to track and increase the single-stream recycling rate.

#### Long-Term Goal:

Increase single-stream recycling rate to approach the overall University 2030 waste diversion goal of 67%.

#### *5 Year Action Plan*

- Map and track current recycling signs and containers in campus buildings and facilities
- Standardize signage and containers for ease of use



- Conduct routine and standardized waste and recycling audits in more specific areas
- Increase recycling and diversion at athletics events by creating a data baseline, working with concessions on packaging and service ware options, and improving messaging and fan engagement strategies
- Track and report single-stream diversion rates by more-specific type and user group

### **3. Decrease the use of plastic individual water bottles on campus**

The American Chemistry Council estimates that the average consumer uses 166 plastic water bottles each year and that 2.5 million plastic bottles are thrown away every hour. While we acknowledge that some individual plastic water bottle use is difficult to avoid, we can do much more to encourage the use of reusable water bottles over single-use disposable bottles. We have learned that when filling personal water bottles is made more convenient, people are more likely to carry and use their own water bottles rather than purchase disposable ones.

Long-Term Goal:

Decrease unnecessary individual water bottle use on campus.

*5 Year Action Plan*

- Install initial and/or additional water-bottle filling stations in every floor of every building
- Commit to and investigate best practices to decrease the sale of single-use water bottles on campus

### **4. Increase accountability and responsibility of all campus divisions for measurable increased recycling, decreased waste production, and decreased waste sourcing**

Waste is not a one-source or one-person problem. Nor is it merely an “end-of-product-life-time” problem. Our choice in products we bring onto campus has an impact on our volume of waste, and we all play a role in choosing what to use and how to dispose of it. To ensure the success of the University’s waste sustainability goals, all divisions should have responsibility for meeting the University’s goals and reducing waste in individual operations. And that means thinking beyond the amount of waste transported away; we must look to actions earlier in the process if we want to more aggressively reduce the University’s overall waste.

Long-Term Goal:

Include waste diversion and/or reduction goals for each administrative division and academic area.

*5 Year Action Plan*

- Consider methods to include waste diversion and reduction goals in individual department and division goals

- Consider protocols for setting goals, measuring results, encouraging participation, and communicating results

## **E. Procurement, Licensing, and Food Sourcing**

There is an important connection between purchasing and sourcing decisions and enhancing sustainability. Each sourcing decision we make presents an opportunity to choose environmentally and socially preferable products and services and to support companies with strong commitments to sustainability. Pope Francis instructs that “a true ecological approach *always* becomes a social approach.”<sup>12</sup> The University should ensure that its vendors align with University goals and values, including its commitment to sustainability. By thoughtfully using its purchasing power, the University has the ability to impact not only the growth of sustainability on campus but the greater growth of a sustainable economy. To make the most of this power, the University should incorporate more robust sustainability considerations in its purchasing and sourcing decisions.

### Strategies

#### **1. Incorporate sustainability standards into formal strategic sourcing and licensing processes**

The University allows its name to be placed on products sold or used throughout campus. Also, a large number of products used on campus are purchased through a formal procurement processes. By making sustainability considerations a key component of these processes, the University can make more informed and more sustainable purchases and serve as a gatekeeper to ensure that sustainable products are brought on campus.

#### Long-Term Goal:

Increase the percentage of sustainable products sourced by the University and encourage greater sustainable practices by our partners and vendors.

#### *5 Year Action Plan*

- Update and enhance the existing sustainable procurement strategy
- Modify the RFP process to require potential vendors, where applicable, to report environmental practices related to the production of their product or service, such as waste prevention, pollution prevention, water conservation, clean air and water programs, reuse of materials, and sustainability goals
- Investigate and implement waste reduction programs with vendors and suppliers that encourage take-back programs, minimal packaging waste, and reusable shipping and packaging containers
- Develop sustainability-related standards for contract analyses, where applicable

---

<sup>12</sup> *Laudato si'*, ¶49.

## **2. Increase and encourage the purchase of more sustainable products by all University stakeholders**

The University must focus on the sustainability of products brought to campus through both formal and informal routes. In addition to the items we license or contract, many items are brought to campus through individual purchasing decisions. University stakeholders make decisions every day on what to buy for use on campus. The University should ensure that all purchasers have easy access to more sustainable options.

### Long-Term Goal:

Foster a community-wide purchasing culture where environmental considerations become an integral part of the evaluation process.

### *5 Year Action Plan*

- Identify more sustainable Green products throughout BuyND catalogs, where applicable
- In collaboration with the Office of Sustainability, create a marketing plan to communicate and encourage use of sustainable products
- Explore methods to streamline and simplify the purchase through BuyND of products identified as more sustainable
- Develop Green Purchasing Guides
- Consider implementing a policy that requires the purchase of EnergyStar appliances and EPEAT electronics, where applicable and available
- Develop a baseline and identify Green Spend targets in key categories

## **3. Create greater vendor/supplier partnerships that lead to more sustainable practices**

Many vendors and suppliers have their own sustainability goals or seek to act more sustainably. By intentionally forging partnerships to increase sustainability, the University can help increase its own sustainability while positively contributing to the sustainability of the supply chain.

### Long-Term Goal:

Increase the overall sustainability of University purchases through partner participation.

### *5 Year Action Plan*

- Create a scoring system to assess suppliers' sustainability practices and set future expectations
- Work with vendors and suppliers to meet shared sustainability goals

## **4. Increase sustainability of food sources**

Each food choice can be an important vote in favor of a sustainable university and a sustainable economy. We can choose to continue current mass food production practices or we can choose to eat more sustainable meals—such as meatless meals that help avoid the increased emissions, increased pollution, and human food depletion that accompany standard meat production. However, more sustainable options must be made available to enable individuals to cast their votes for a more sustainable life and community.

Long-Term Goal:

Increase the amount of sustainable food available at food service facilities across campus.

*5 Year Action Plan*

- Increase vegetarian/vegan options in dining halls, catering, and retail locations
- Purchase a greater volume of food from local sources
- Purchase more ethically-sensitive food

**5. Provide greater transparency of sustainable purchasing and licensing**

Long-Term Goal:

Promote greater understanding and accountability of the University's role in sustainable purchasing and sourcing decisions.

*5 Year Action Plan*

- Increase reporting of sustainable procurement activities
- Track and publish annual Green Spend rates
- Report percentage (or number) of suppliers considered sustainable suppliers
- Track and publish sourcing of dining hall, catering, and retail food purchases

**F. Education, Research, and Community Outreach**

Many things have to change course, but it is we human beings above all who need to change. . . . A great cultural, spiritual and educational challenge stands before us, and it will demand that we set out on the long path of renewal.<sup>13</sup>

As His Holiness Pope Francis instructs, to change, we must educate—and education and research are the lifeblood of a university. Scholarly activity impacts more than the University's current carbon footprint—it impacts global actions and outcomes for generations to come. Research that is conducted by a university reflects university values and priorities, and that is equally true when striving to be good stewards of the environment. By highlighting the sustainability-related education and research conducted at Notre Dame, the University confirms its commitment to sustainability and its commitment to Catholic values. By enhancing the

---

<sup>13</sup> *Laudato si'*, ¶1202.

number of courses and research projects that expand the knowledge, understanding, and advancement of sustainability and by increasing community engagement in sustainability, the University continues to act in conjunction with its Catholic mission, an integral component of all our education and research initiatives.

### Strategies

#### **1. Convene a faculty and administrative committee to identify best practices to expand and create additional sustainability-related courses, learning outcomes, and research and learning projects**

Learning can occur at many levels on campus—in formal classroom settings, research laboratories, and experiential activities. By working together, faculty, students, and administrators can help identify, create, and expand opportunities for sustainability education at the University across all academic disciplines.

##### Long-Term Goal:

Increase sustainability research and learning opportunities at the University.

##### *5 Year Action Plan*

- Create a faculty and student committee to serve as the Academic Steering Committee to oversee formal sustainability education and research initiatives to be developed under these goals
- Set goals and action items to expand opportunities for sustainability education and research in all academic areas
- Create programs and training that allow staff and faculty to increase their knowledge about sustainability more generally and as it is applied on campus

#### **2. Enhance tracking and reporting of sustainability-related courses**

Greater access to sustainability-related courses is important to existing and incoming students. However, it can be challenging to identify the courses that incorporate sustainability in the course work. To give students greater choice and access, the University needs to adopt a process that better identifies, tracks, and publishes sustainability-related courses and academic tracks.

##### Long-Term Goal:

Accurately track and report sustainability-related courses available at the University to allow students the greatest opportunity to enhance their sustainability learning experience.

##### *5 Year Action Plan*

- Work with the Registrar's Office to create a process to track and identify sustainability-related courses and seminars

### **3. Investigate best practices to promote and track sustainability-related research by faculty and students**

Research that is conducted by a university reflects university values and priorities.

#### Long-Term Goal:

Accurately track and report sustainability-related research conducted by University faculty and students.

#### *5 Year Action Plan*

- Convene a faculty committee to work with the Office of the Vice President for Research to create a process to track and identify sustainability-related research

### **4. Report annually on sustainability-related courses, projects, and research**

The breadth and scope of the University's academic exploration of sustainability are of interest to students, alumni, supporters, and the greater University community. By reporting on its participation, the University shows its commitment to advancing sustainability in all academic disciplines.

#### Long-Term Goal:

Promote greater understanding and accountability of the University's role in sustainable research and education.

#### *5 Year Action Plan*

- Track and publish annual number and enrollment in sustainability-related courses
- Track and publish annual sustainability-related research dollars
- Track and publish annual participation hours in sustainability-related projects

### **5. Increase community outreach and engagement to develop and support sustainability initiatives at every level of the University community**

The key to success in increasing sustainability is individual action. The University can set goals and devise initiatives, but without individual involvement, there is little hope for success. The University must inspire its students, faculty, staff, alumni, and friends to work toward these goals and plans through greater engagement and outreach.

#### Long-Term Goal:

Promote greater engagement in the University's sustainability goals.

#### *5 Year Action Plan*

- Create partnerships across academic disciplines and administrative departments to increase knowledge and engagement of each group’s sustainability developments
- Create a process to annually recognize individuals, departments, and groups who are helping to increase sustainability on campus

## Conclusion

Our University values and Catholic mission require us to be good stewards of our people and environment. To be able to pass on these values and mission to future generations, it is imperative that we consider the impact of the University on the environment and society and the greater impact it can have in the future. Through these University-wide sustainability recommendations, the University will take important steps to help protect the Earth and all of its creatures. Equally important, it is crucial to understand that we, as individuals, are called upon to personally act to protect our Earth—to change our behaviors and practices, to encourage others to change their practices, and to embrace all we can do to become more sustainable—and help meet God’s plan. As His Holiness Pope Benedict XVI directed:

[I]t is imperative that mankind renew and strengthen “that covenant between human beings and the environment, which should mirror the creative love of God, from whom we come and towards whom we are journeying.”<sup>14</sup>

---

<sup>14</sup> Message of His Holiness Pope Benedict XVI for the Celebration of the World Day of Peace, “If You Want to Cultivate Peace, Protect Creation,” January 1, 2010, ¶1, quoting Benedict XVI, Message for the 2008 World Day of Peace, ¶17.



UNIVERSITY OF  
NOTRE DAME